

ROOF HAIL DAMAGE ASSESSMENT

Project: Brant Medical Clinic
6801 NW 39th Expressway
Bethany, OK 73008

Date of Loss: 5/16/10
File # 214.443

Date of Site Visit: 9/11/12
Time of Visit: 9:30 a.m.

Prepared for: Daniel C. Andrews
Jones, Andrews & Ortiz
Attorneys at Law
21 E. Main Street, Suite 101
Oklahoma City, OK 73104

Prepared by: Patrick E Heil, RRO, RRC
P H Companies, LLC
1292 Chevelle Dr.
Baton Rouge, LA 70806

NOTES, OBSERVATIONS AND COMMENTS

I visited the site for the purpose of assessing hail damage to the roofing assemblies. Prior to my visit I had reviewed:

- File information furnished by Dan Andrews containing State Farm adjusters' estimates and photographs
- A roof replacement proposal by Billy Ellis Roofing (cursory review only)
- A roof replacement proposal by Blake Roofing (cursory review only)
- A brief handwritten statement from Carter Re-roofing dated 10/22/10

A hail storm occurred on 5/16/2010 in and around Oklahoma City. The National Oceanic and Atmospheric Administration (NOAA) reports a citing of 0.88" diameter hail at an intersection located approximately 2 miles from the subject building. I was unable to locate any hail reports on that date in closer proximity to the building location.

Dr. Brant directed us to multiple stained ceiling tiles throughout the entire building with a basic exception of the highest roof area where no roof leaks are reported. Dr. Brant also informed us that some of the stained ceiling tiles have recently been replaced and the stains have come back since then.





We then walked the perimeter of the building observing the building cladding systems and fascia, most of which is wood, some of which is aluminum. None of the wood or aluminum fascia system and wall cladding materials exhibit any evidence of hail damage.

After walking the building perimeter I then accessed the roof and made a thorough inspection of the roofing membrane assembly (including hands and knees close-up inspection) for any hail damage. My findings of this are included in each roof section description below. We requested of Plaintiff's counsel the opportunity to take test samples from the roofing assembly for laboratory analysis. We also offered to arrange for and pay for repairs to these test cuts. In a laboratory, the bitumen can be dissolved off of the reinforcing mat imbedded in the membrane cap sheet so that the mat can be examined for hail damage. If hail damage exists in the sample it is clear and concise evidence that hail damage exists. We were, however denied by plaintiff's counsel the opportunity to make test cuts in the roofing assemblies.

I also inspected the roofing membrane assemblies for wind damage. Wind uplift on asphaltic roofing assemblies is evidenced by stress cracks in the membrane at the corners of curbs, at the toe of wall flashings, and around drains and other penetrations that are anchored to the roof deck or structure in the proximity of the uplifted roof areas. Evidence of wind uplift can also be detected by circular wrinkling patterns in the roof membrane where it "ballooned", and in board shuffle and/or fastener rollover where the membrane is disturbed by wind. There is no evidence of any wind damage to the roofing membrane assemblies.



There are several packaged roof top air conditioning units and condensing units located at nearly all of the roof levels. These units appear to be various ages and appear to be in varying state of repair. I noted minor to severe coil fin damage at nearly every one of the package roof top units. Some of this damage appears to be hail related; however some of the excessive damage does not appear to be hail related as it is inconsistent with the remainder of the coil fins on the remainder of the units. I

noted some coil fin damage on coils facing all four directions. This damage is inconsistent with any one particular hail storm as hail is typically wind driven from a particular direction during any specific storm. Normally coil fin damage caused by a hail storm is limited to the coil fins facing no more than two directions. The newer air conditioning units exhibit only very minor hail marks on the coil fins, indicating heavier hail damage occurred during hail storms that occurred prior to the subject hail storm.

The roof consists of at least three types of roofing materials configured at four different roof levels as shown on the attached roof sketch.

Roof Level 1:



The highest roof level which typically covers the lobby area has a smooth surfaced, heat fused modified bitumen cap sheet which exhibits a considerable amount of exposed fiberglass due to age and deterioration and lack of protective coating. The roof appears to have been installed in a singly ply fashion. Multiple repair attempts have been made on the roof. The roof has a raised perimeter edge, one internal roof drain and one small overflow scupper. The roof appears to be configured at a dead level slope and evidence of ponding water exists throughout the assembly. There

are two small aluminum vent caps constructed of very light gauge aluminum that exhibit small hail dings consistent with possibly pea or dime sized hail strikes.

Dirt has accumulated in the ponded areas and remains deposited on the roof surface. There are also small (pea to dime sized) visible splatter marks in the dirt that has accumulated on the surface of the roof where possible hail strikes have dislodged the dirt exposing the membrane below. I made a hands and knees examination of these splatter marks and find no evidence whatsoever of any hail damage to the roofing membrane.

Roof Level 2:

The next lower roof level surrounds the high roof on at least three sides. This roof is a white granular surfaced mopped applied modified bitumen membrane that appears to be typically configured at a dead level slope. The roof edges are slightly raised and there is evidence of excessive ponding water throughout the roofing assembly. The roof exhibits blisters throughout the assembly, mud cracking in the surface and substantial granular loss; all due to age and deterioration and possible installation errors. There are multiple penetrations that are poorly detailed and many leak potentials exist at these penetrations and at blisters and loose laps. There are seven heater vents that are constructed of very light gauge aluminum that exhibit small hail dings consistent with possibly pea or dime sized hail strikes.



The granular loss and mud cracking typically occurs at the blistered and ponding areas making these defects obvious products of heat aging and deterioration. There is absolutely no pattern of granular loss on the roof that would be consistent with hail strikes. I carefully examined the areas where the granular loss has occurred for any hail damage to the roofing membrane and found none. Granular loss is a function of age and deterioration and in this instance is not the result of any hail storm. The most severe granular loss in this entire roof area occurs at the areas of the most severe ponding water.

Roof Level 3:

The next lower roof level is a heat fused smooth surfaced modified bitumen membrane that appears to have been configured in a single ply fashion. This roof also is configured at a slope that is nearly dead level and ponds a considerable amount of water over most of the roof area. This is evidenced by dirt accumulation throughout the roofing assembly. Multiple leak potentials exist at improper penetrations, loose laps and drain detailing. Multiple repair attempts have been made.

There are two domed vent fan covers that are fabricated of light gauge aluminum that exhibit small hail dings consistent with possibly pea or dime sized hail strikes.

A tree growing in the courtyard near the front of the building has covered a portion of the roof over Dr. Brant's office and scours the roofing assembly at that location.

Dirt accumulation and vegetation appears at much of the roof. Very small surface mud cracking exists at much of the roof area due to age and deterioration. The dirt that has accumulated on much of the roof surface due to excessive ponding water exhibits splatter marks where small (pea to dime sized) hail strikes have dislodged the dirt on the surface of the roof. I made a hand and knees inspection at many of these splatter marks in the dirt surfacing on the roof and find no evidence of any hail damage to the roofing membrane. Blisters and wrinkles exist in the surface of the roof predominately at the areas that pond the most excessive water.

One acrylic skylight is located in this roof area. The skylight is very aged and dry as evidenced by stress cracking from the edges of the skylight. These skylights typically become very brittle with age and are most susceptible to hail damage. There is no hail damage to this skylight.

Roof Level 4:



This is a raised portion of the roof located near the southeast corner of the building. This area drains to one internal roof drain and appears to have slight slope to drainage except for an area of approximately $\frac{1}{2}$ square around the roof drain. This roof membrane appears to be the same age, general condition and type of construction as the roof noted above on area 3.

Dirt accumulation appears at some of the roof. Very small surface mud cracking exists at much of the roof area due to age and deterioration. The dirt that has accumulated on the roof surface due to ponding water exhibits splatter marks where small (pea to dime sized) hail strikes have dislodged the dirt on the surface of the roof. I made a hand and knees inspection at many of these splatter marks in the dirt surfacing on the roof and find no evidence of any hail damage to the roofing membrane.

PLAINTIFF'S EXPERT REPORTS

After my visit to the site and prior to issuing this report I reviewed the following documents:

- A report prepared by Jim Schratz and Associates dated January 21, 2013
- A report prepared by Forensic Building Science, Inc., dated January 18, 2013

The Schratz report deals with insurance and legal issues that are beyond my field of expertise. There appears to be no technical information regarding hail damage to the subject roof in the Schratz report.


Of particular concern in the Forensic Building Science report are the following issues:

1. The report includes extensive documentation of the experience and education of Tom Irmiter and Brian Johnson. This documentation includes very little experience and/or formal education specific to commercial roofing.
2. The report is signed by Mr. Irmiter and Mr. Johnson. According to the report, neither Mr. Irmiter nor Mr. Johnson ever visited the site.
3. According to the report, the site was inspected by Gregory Crawford, Project Manager and Ashley Olson, Engineer-in-training. No experience or education for either person that visited the site on behalf of Forensic Building Science, Inc. has been stated or provided.
4. The roofs on the building are incorrectly identified as "4-ply of built up roofing with an aluminum coating" in item 1.6 of the report. The correct roof identifications are included above in this report.
5. There is absolutely no proof of hail damage to the membrane roofing assemblies contained in the report. There are several general photos of the roofs that contain circles made with chalk or lumber crayon around discolored areas on the roof. No close-up photos depicting actual hail damage to the roofs are included. No written description of any hail damage to the roof membrane is offered in the report except for the following statement: "Hail damage to the membrane is noted as well".

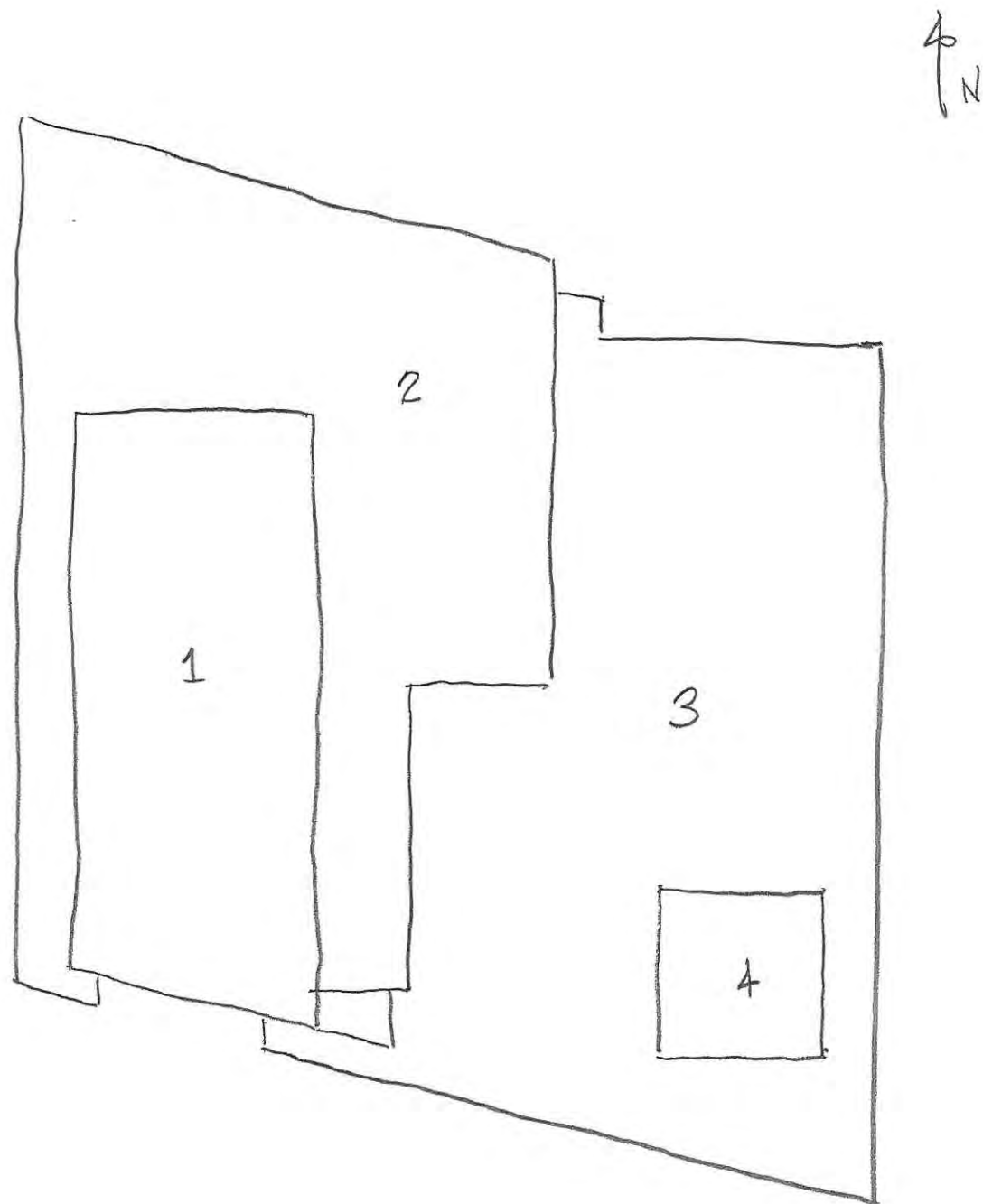
CONCLUSIONS

There is no hail damage to any of the membrane roofing assemblies on the subject building. Small hail dings on the aluminum vent caps are esthetic only and do not effect the performance of the caps. The caps can be replaced at a cost in the range of \$25-75/each. Damages to the coil fins of the roof mounted condensing units caused by the subject hail storm are minor and can be corrected by combing the fins.

There is no evidence of any wind damage to the roofing membrane assemblies.


2/11/13
Patrick E. Heil, RRO, RRC





ROOF SKETCH
BRANT PROPERTY

BRANT PROPERTY
9/11/12

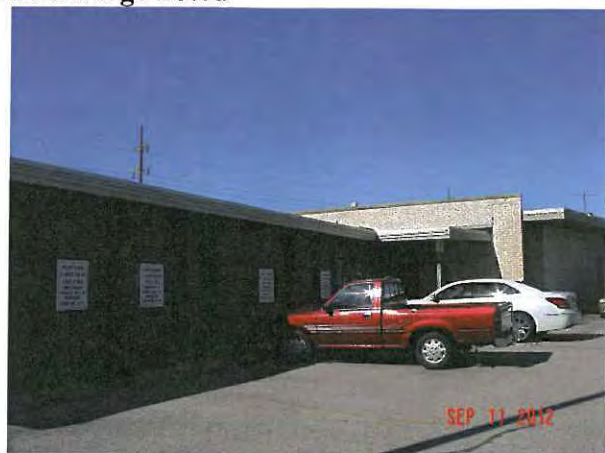
Typical interior leaks reported by Dr. Brant



Exterior photos, no hail damage noted



Exterior photos, no hail damage noted



ROOF AREA 1

General roofing views



Membrane deterioration due to age



Small hail dings in soft aluminum caps



Small hail splatter marks in the dirt accumulation on the roof



The splatter marks are displaced dirt only
When the dirt is removed there is no damage to the roof membrane





Improper detailing, leak potential



Improper repair, leak potential



Failed repairs, leak potential

ROOF AREA 2



General roofing views

Note poor roof condition due to age and deterioration, not hail related





General roofing views

Note poor roof condition due to age and deterioration, not hail related





Alligatored surfacing, not hail related



Granule loss due to age and deterioration, not hail related



Granule loss due to age and deterioration, not hail related





Blistering and alligatoring, not hail related



Improper repairs, leak potential



Improper repair, leak potential



Open flashing, leak potential



Improper detailing, leak potential



Small hail dings on soft aluminum cap

ROOF AREA 3

General roofing views





General condition of roof is poor due to age and deterioration, not hail related





Improper detailing creates leak potential



Improper detailing creates leak potential



Improper repair creates leak potential



Improper repairs create leak potential



Open base flashing at wall creates leak potential



The splatter marks are displaced dirt only
When the dirt is removed there is no damage to the roof membrane





Skylight has lost plasticizers and has become very fragile
as evidenced by stress cracks



No hail damage to fragile skylight

ROOF AREA 4



Age and condition same as roof area 3

AIR CONDITIONER COIL DAMAGE



Newer units display very little coil fin damage
This is an indication that the subject hail storm produced only very small hail





Coil fin damage on these units is not hail related





Note the contrast in coil fin damage in the newer unit in the foreground and the older unit in the background



Coil fin damage from prior hail storm

PROFESSIONAL PROFILE

PATRICK E. HEIL, RRO, RRC

PROFESSIONAL

Patrick E. "Pat" Heil is a professional Registered Roof Consultant from the Baton Rouge area that typically serves the building owner. His ultimate and perpetual goal is to promote building envelope integrity. Other clients include roofing manufacturers, architects, engineers, insurers, claims adjusters and municipalities.

Pat has focused extensive continuing education hours specifically on building envelope (roofing and waterproofing) issues. His combined extensive field experience and formal education have prepared him to serve as a roofing consultant.

Being located in the southeastern region of the country in the proximity of the Gulf of Mexico, Pat has had the opportunity to study literally hundreds of roofs that have sustained wind damages varying from minor punctures and tears to partial and complete blow-offs. On behalf of owners, insurers, adjusters and forensic engineers Pat has been instrumental in settling wind damage claims on roofs and building exteriors ranging from very small to multi-million dollar claims. The State of Louisiana Office of Risk Management (ORM), FEMA and property insurers have called on Pat to study numerous loss claims and render expert opinions as to the cause and severity of loss.

Courts and numerous clients have recognized Pat as a hail damage expert. He has also served as a court appointed expert in roofing hail damage litigation.

Pat has been instrumental in the formulation, development and maintenance of the State of Louisiana Roof Management Plan that encompasses over 40 million square feet of low-slope and steep slope roofing assemblies.

Pat is an established expert witness with court testimonies given in the areas of Roof Technology, Building Envelope Technology, and Water Management in Building Construction. While the numbers of court/arbitration appearances are limited, Pat's expertise has contributed to the settlement of dozens of lawsuits and potential lawsuits without the necessity of court hearings.

Pat is a proven educator on the subjects of Building Envelope/Roofing Technology. He has presented to engineers, architects, consultants, manufacturers, contractors and building maintenance personnel.

EDUCATION

1975 – 1979 B.S. Degree, Construction Technology - Louisiana State University, Baton Rouge, LA
1969 – 1973 High School – Tara High School, Baton Rouge, LA

CONTINUING EDUCATION

	HOURS
• April, 2012, RCI Various Technical Sessions	11.5
• April, 2011, RCI Various Technical Sessions	10
• January, 2011, Silicone Sealant Technology	3
• March, 2010, RCI Various Technical Sessions	11.5
• September, 2009, Presenter, RCI Professional Roof Consulting	8
• March, 2009, RCI Various Technical Sessions	13
• January, 2009, LA Construction Law	6
• March, 2008, RCI Various Technical Sessions	6
• March, 2008, Presenter, NABIE; Roof Inspection Procedures	3
• May, 2007, Presenter, RCI Professional Roof Consulting	8
• March, 2007, RCI Various Technical Sessions	5.5
• January, 2007, RCI Roofing/Waterproofing Winter Workshop	15
• March, 2006, RCI Various Technical Sessions	13
• April 2005, RCI Various Technical Sessions	10
• March, 2005, Presenter, RCI Professional Roof Consulting	9
• February, 2005, NRCA, Various Technical Sessions	3.5
• March, 2004, RCI Various Technical Sessions	10
• March, 2003, RCI Various Technical Sessions	12
• June, 2003, Presenter, RCI, Professional Roof Consulting	11

• February, 2003, NRCA, Various Technical Sessions	3.75
• June, 2002, Preventing Moisture and Mold Problems in Hot, Humid Climates	16
• May, 2002, RCI Various Technical Sessions	7.5
• October, 2002, RCI Building Envelope Symposium	16
• April, 2002, RCI Various Technical Sessions	8.5
• March, 2000, RCI Various Technical Sessions	10
• March, 1999, RCI Various Technical Sessions	8
• January, 1999, RCI/RICOWI, Joint Meeting	7
• March, 1998, RCI Various Technical Sessions	13
• November, 1997, Siplast, Mod-Bit Roofing Technology	8
• August, 1997, RCI, Region IV Meeting	5
• March, 1997, SPI/SPFD, 101-1 Accreditation	8
• March, 1997, RCI Various Technical Sessions	18
• September, 1996, RCI, Region IV Meeting	4
• March, 1996, RCI, Region IV Meeting	4
• April, 1996, RCI Various Technical Sessions	21.5
• February, 1996, RCI Advanced Roof Consulting, Chicago, IL	30
• January, 1996, RCI Rooftop Quality Assurance, Dallas, TX	16
• November, 1995, RCI, Region IV Meeting	5
• September, 1995, RCI Basic Roof Consulting, Chicago, IL	20
• February, 1995, AHERA Inspector Update Training, Baton Rouge, LA	4
• February, 1995, RIEI – Total Roof Management, New Orleans, LA	8
• February, 1995, RIEI – Modified Bitumen, New Orleans, LA	8
• November, 1994, RIEI – Roofing Technology, Las Vegas, NV	30
• April, 1994, RIEI – Roof Inspection and Maintenance, Denver, CO	22
• October, 1994, AHERA Building Inspector Course (asbestos), Baton Rouge, LA	24
• June, 1993, BURSI, Baton Rouge, LA	8

EMPLOYMENT

1991 – Current	Roof consulting services including specification development, systems analysis, moisture surveys, quality assurance, educational seminars, forensic studies, expert witness work, storm damage assessments and roof management plans.
1989 – 1991	Estimator, project manager and field supervisor for roofing/sheetmetal contractor. These years offered valuable hands-on experience in configuring roofing/sheetmetal assemblies and determining what works, what fails and why.
1979 – 1989	Estimator, project manager and field supervisor for industrial/commercial general contractors. These years yielded a diversity of experience ranging from field trades management to multi-million dollar contract negotiations.
1970 – 1979	General carpentry, land surveying and auto mechanics during the high school and college years.

ESTABLISHED ROOFING EXPERT

October 2012

St. Catherines of Sienna v Kiker Corporation

Expertise: Roofing Technology, Building Envelope

Mobile County 13th Judicial Circuit Court

Mobile County, Mobile, Alabama

Honorable James C. Wood Presiding

February 11, 2011

Peter and Helen Conelly v State Farm

Expertise: Hail Damage to Roofing Assemblies

19th Judicial District Court

Parish of East Baton Rouge, State of Louisiana

Honorable Wilson Fields Presiding

September 2010

Court appointed hail damage expert

City Court of Baton Rouge

Parish of East Baton Rouge

State of Louisiana

Honorable Yvette M. Alexander presiding

(No court appearance required, case settled on issuance of report)

May through September, 2010

Southgate Towers v Mapp Construction, LLC

Expertise: Roofing Technology

AAA Arbitration Hearing

Allison J. Snyder, Panel Chair

Donald O. Pratt, Arbitrator

Roger W. Stone, Arbitrator

July 3, 2008

Maughan v State Farm

Expertise: Roofing Technology

19th Judicial District Court

Parish of East Baton Rouge, State of Louisiana

Honorable Kay Bates Presiding

November 12, 13 & 14, 2007

Scully Financial v Fred Matthews, Inc.

Expertise: Roofing Technology, Building Envelope/Water Management in Building Construction

Binding Arbitration per AAA Rules

Baton Rouge, Louisiana

Arbitrated by H. Bruce Shreves

October 24, 2007

Thomas J. & Kathleen F Huthcherson v Harvey Smith Construction, Inc. and ABC Insurance Company

Expertise: Roofing Technology

19th Judicial District Court

Parish of East Baton Rouge, State of Louisiana

Honorable Wilson Fields Presiding

September 23, 2004
Frank Fasullo v A-1 Roofing Systems
Expertise: Roofing Technology
19TH Judicial District Court
Parish of East Baton Rouge, State of Louisiana
Honorable Mike Caldwell Presiding

PROFESSIONAL AFFILIATIONS

Professional Member, Roof Consultant's Institute, Raleigh, NC, since 1995
Consultant member, National Roofing Contractor's Assn, Chicago, IL, since 1996
Professional Member: American Society of Mechanical Engineers, since 1988

PROFESSIONAL ACHIEVEMENTS

1995, Awarded Registered Roof Observer (Registration No. 0107) by the Roof Consultant's Institute
1996, Awarded Registered Roof Consultant (Registration No. 0193) by the Roof Consultant's Institute
1997, Awarded Spray Polyurethane Foam Inspector by SPI/SPFD

SPEAKER/PRESENTER

Fatal Errors in Roofing Design for Review Architects, Facility Planning and Control, State of LA, May, 2009
A Systematic Approach to Roof Inspections for the National Academy of Building Inspection Engineers (NABIE), February, 2008
RCI, Professional Roof Consulting Sessions, 2003, 2005, 2007, 2009
Building Envelope Technology for Professional Contractors, 2007
Corrosion Problems Caused by ACQ Treated Lumber, 2005, 2006, 2007
Roof Inspection, Repair and Maintenance for State Owned Buildings, 1996 to present

**Depositions given by
Patrick E. Heil
Where no trial appearance occurred
2009 to current**

Louisiana Stadium Exposition District LLC SMG v BFS Diversified Products LLC IMC
Orleans Parish, New Orleans, LA
2009

State of LA, Forms Management v Charles Carter Construction
19th JDC, East Baton Rouge Parish, Baton Rouge, LA
2011

P H Companies, LLC

CONSULTANT RATES EFFECTIVE 1/1/11

Principal; Patrick E. Heil, RRO, RRC, Hourly Rate, \$160.00 (for all tasks including field investigation work, reporting, meetings, plan reviews, depositions, trials, misc. consulting, etc.)

Technician/Field Assistant; Hourly Rate, \$75.00

Hourly rates apply portal to portal for travel other than vehicular travel. The portal that starts and stops time during overnight stays is the hotel/motel.

Vehicular Travel; \$1.75/mile (includes time while traveling) if work is within driving distance

Airfare, rental cars, etc.; cost plus 10%

Per diem expense (includes hotel & meal expenses); \$175.00/day (higher in some areas)

Equipment rentals, small tools, cutting and patching materials, etc.; cost plus 10%

Outside printing, mailing, photo developing, etc.; cost plus 10%

Roof Management Plans; Lump-sum fee only

Roof Moisture Surveys; Lump-sum fee only

Educational Seminars/Speaking Engagements; Lump-sum fee only

Cancellations or rescheduling of depositions, trials, arbitrations, stand-by dates, etc. within two weeks of set date will be billed at the rate of 4 hours per day held open